

THE CALIFORNIA APPROACH *

W. F. HIGBY
San Francisco

THE method of choice in tuberculosis case finding, as set forth by Plunket and others, and based on epidemiological experience, is to trace existing cases from the source—the reported case. This method is apparently sound, but can be effective only when there is adequate reporting, correlated public health nursing, adequate clinic facilities, a cooperative medical profession, sufficient sanatorium beds, and a well-organized health department.

There are few places in California where this condition exists. To obtain these facilities is the primary objective of a tuberculosis association. Many California counties are now approaching this goal. Given these facilities, there are those who say no supplementary methods need be used.

Unlike smallpox or typhoid, tuberculosis has an undetermined course. The presence of infection usually can be determined by the tuberculin test. Active disease in the lungs usually can be detected by the x-ray. The problem is to find the early case in the apparently healthy person before signs and symptoms appear.

WORK AMONG CALIFORNIA SCHOOL CHILDREN

Because school children and college students are widely accessible, these groups have been the first avenue of approach. The tuberculin testing and x-raying of positive reactors, and tracing back into the family to find the source, was begun in California with a systematic plan in 1932. With the exception of certain metropolitan areas, every school child in California has been offered this service during the past ten years, and hundreds of thousands of children have been tuberculin-tested. Tens of thousands have been x-rayed and tens of thousands of visits by nurses have been made to find the source of the infection.

This method, when first used in a given community, finds comparatively large numbers of cases. There are diminishing returns after the first few years. Generally health departments and school health departments are taking over this procedure, routinely testing the first grade, the freshmen and senior high school students. Many tuberculosis associations are still carrying on this work as an aid to the official agency.

Emphasis has been focused upon the preschool child because existence of infection is near the source and should be productive in finding cases if there is adequate follow-up and examination of all household contacts. The American Academy of Pediatrics has announced, as a policy, that tuberculin testing should be routine in pediatric practice.

CITIZEN GROUPS EXAMINED

In eighteen counties in California, routine examination of expectant mothers has become a part

of the regular program. Almost universal consent is obtained in prenatal clinics for tuberculin testing and x-raying of these women. Many active cases have been found. There is statistical evidence that the rate of tuberculosis meningitis in these counties has been reduced. There is evidence that this procedure should be fostered in private obstetrical practice.

Revision of the law by the last legislature has given great impetus to the examination of school teachers and school personnel.

Many hospitals, as a matter of self-protection, are x-raying hospital employees and nurses. A small start has been made in certain areas on the routine x-raying of all clinic and hospital admissions in general hospitals and clinics.

Dublin has suggested that case finding among foreign groups, where the death rate from tuberculosis is high, is a most productive field for case finding. The Los Angeles City Association in its Negro population, and the San Francisco County Association in its Chinese population, have shown that there is much tuberculosis that can be found in these groups. Other associations have worked among the Filipinos, Mexican, Japanese, and other foreign racial groups.

Examination of employees of mercantile and industrial establishments, of food handlers, and members of labor unions began shortly after the organization of the California Tuberculosis Association in 1904. The examinations were made by history, physical signs, and clinical inspection. Many cases of tuberculosis were found, mostly in moderate or far-advanced stages.

About 1923, numerous California associations devoted considerable attention to the organization of medical departments in industry. This was stimulated by the operation of the Industrial Accident Law. Attention to this field was diverted by the Child Health Movement, in which local associations concentrated upon nutrition, summer camps, and preventoria. Budgets were almost exclusively used in forwarding these projects.

About 1930 attention became focused upon case finding, and tuberculin testing and x-raying of school populations. Recently there has been a national trend toward a return of emphasis to the adults.

FLUOROSCOPIC EXAMINATIONS

Mass surveys of adult population began several years ago especially with the fluoroscope. These activities have been intensified during the past three years. Nine county associations own and operate fluoroscopes and thousands of adults are examined each year.

During twenty weeks of 1942 the fluoroscope, given to the State Association by the 40 and 8 branches of the American Legion, was used by nine county associations. Approximately ten thousand persons were fluoroscoped during this period and nearly a thousand were referred for standard 14 by 17 films of the chest. The State fluoroscope is scheduled for constant use during 1943.

Alameda County was the pioneer in the use of the fluoroscope in mass surveys, beginning in 1935.

* From the secretary's office, California Tuberculosis Association.

Read before the California Trudeau Society and the California Tuberculosis Association, Fresno, April 7, 1943, in the symposium on "War-Time Tuberculosis Case Finding."

San Francisco followed with this method of mass case finding. Scores of groups have been surveyed, and each year thousands of adults have been examined. Some of this work has been reported in the literature. Reports of the use of the fluoroscope by other county associations will be given at this meeting.

Coincident with the use of the fluoroscope in adult case finding there has been extensive use of 14 by 17 film in practically every county. In 1942 there were 2,529 x-ray films read from twenty-two rural counties by a panel of consultants for the State Association, and many others were read in local communities.

Trucks with portable 14 by 17 x-ray machines are operated by three county associations. Three county associations own and operate standard 14 by 17 x-ray equipment.

With the introduction of practical, portable, miniature x-ray film machines, the trend is toward the use of this apparatus for mass case finding in the general population.

In 1930, we set as our goal that every high school child in California should have an opportunity to have a tuberculin test, and, if positive, an x-ray by 1940. This has been accomplished. It is my conviction that it is not too ambitious a program to set as a new goal, that by 1950 every adult in California shall have had an opportunity for an x-ray of his chest, provided either by his private physician, by his tuberculosis association, or his county health department.

Two county associations, Orange and Santa Cruz, have purchased, and have in operation, 35 mm. Westinghouse photofluorographic units. The Sacramento County Association has ordered such a unit and has all priorities cleared. Four other associations have recommendations before their boards of directors to purchase such equipment, and Yolo and Solano have authorized purchase of the units.

Los Angeles County and Los Angeles City Associations have jointly purchased a General Electric portable photofluorographic stereo equipment mounted on a truck. This equipment has been delivered. The California Tuberculosis Association has also purchased identical equipment and delivery will probably be made in July. This latter equipment will be rented at operating cost to the local associations of the federation.

The Santa Clara Association has purchased similar equipment, which will be built in a trailer. The Pasadena Association has ordered a semi-portable 4 by 5 unit, which will be housed at their headquarters.

With all of this equipment in full operation, and with thousands of California men and women being x-rayed by the Army, Navy, Coast Guard, and United States Public Health Service, a real beginning will have been made in the conquest of tuberculosis. By September the California tuberculosis associations will be x-raying approximately 6,000 apparently well adults each week.

In facing mass case finding, as of 1943, it is well to note certain changes in the concept of tuberculosis concurrent with the perfection of the x-ray;

the advance of surgical and clinical procedures, and with the development of full-time health departments.

When organized tuberculosis work was begun forty years ago, certain facts were apparent and measures to combat tuberculosis based on these facts were inaugurated. It was learned:

1. Tuberculosis was either consumption or tuberculosis of the bones or glands.

2. No methods were available to obtain early diagnosis.

3. In the majority of cases the diagnosis was the death warrant.

4. There was little effective treatment available except bed rest.

5. Ninety per cent of the population had been infected.

Methods to combat tuberculosis were established as follows:

1. The reporting of cases.

2. Establishment of clinics to diagnose tuberculosis by the crude methods then available.

3. Sanatoria beds, designed primarily for segregation of the sick from the well, were built.

MORE RECENT CONCEPTS

During the past decade new facts in relation to tuberculosis have been emerging which change our whole concept of the disease and of case finding. Let us compare these new concepts with those at the beginning of our campaign.

1. Early pulmonary tuberculosis may be recognized by x-ray examinations.

2. Most physicians can be trained to diagnose the disease in its early form.

3. In most cases, when discovered early, the course of the disease is short.

4. Active methods of treatment are available for all stages of disease.

5. Studies have shown that from one-half of one per cent to three per cent of the adult population has tuberculosis in a communicable form.

6. Tuberculosis of bovine origin has been virtually eliminated.

CONCLUSIONS

From the economic point of view it would seem logical that every citizen in California, regardless of economic status, should be entitled to a miniature x-ray film of his chest as a service for his purchase of Christmas Seals. As a protection of the medical profession, the procedure should be defined as the screening method to detect the cases of clinical tuberculosis in order that they may be removed from contact with their fellow citizens and placed under medical care.

The survey should not be considered a regular diagnostic procedure nor an assumption of responsibility in the field of medical treatment. In all cases when there is evidence of chest disease or abnormality, the patient should be referred to his own physician. The procedure should be considered only as a case finding procedure to search out among the general population those persons who need medical care and are not aware of it.